

Opener MPM 1D

Find the Pt of Intersection Between
 $y = -3x + 4$ and $3x - 2y = 16$

Apr 28-9:54 AM

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Find the Pt of Intersection Between
 $y = -3x + 4$ and $3x - 2y = 16$

$$y_1 = y_2$$

$$3x - 2y = 16$$

$$\cancel{3x} - \cancel{3x} - 2y = -3x + 16$$

$$-2y = -3x + 16$$

$$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{16}{-2}$$

$$y_2 = +\frac{3}{2}x - 8$$

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$$2(-3x + 4) = \left(\frac{3}{2}x - 8\right) \cdot 2$$

$$-6x + 8 = 6x - 16$$

$$-6x + 8 = 3x - 16$$

$$-\cancel{6x} + 8 = 3x + \cancel{6x} - 16$$

$$8 = 9x - 16$$

$$8 + 16 = 9x - 16 + 16$$

$$24 = 9x$$

$$\frac{24}{9} = \frac{9x}{9}$$

$$x = \frac{24}{9}$$

$$x = \frac{8}{3}$$

$$y = -3x + 4$$

$$y = -3\left(\frac{8}{3}\right) + 4$$

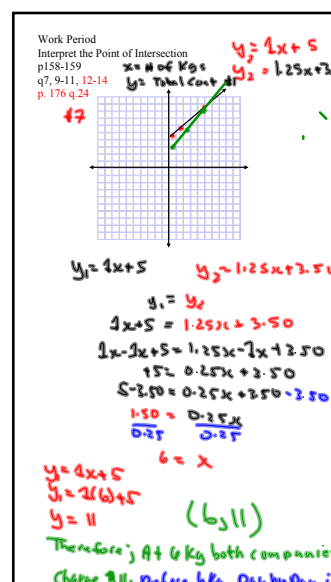
$$y = \frac{24}{3} + 4$$

$$y = -8 + 4$$

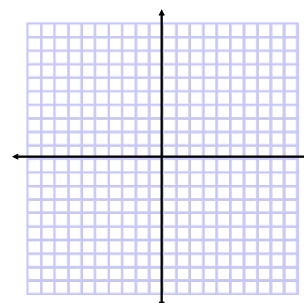
$$y = -4$$

$$\left(\frac{8}{3}, -4\right)$$

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Work Period
Interpret the Point of Intersection
p158-159
q7, 9-14

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p. 113 handout

Point of Intersection

q. 4

Gas $C = 0.90d$
Electric $C = 0.30d + 2400$

$d = \text{distance in kms}$

$y_1 = 0.90x$ $y_2 = 0.30x + 2400$

$y_1 = y_2$
 $0.90x = 0.30x + 2400$

$0.90x - 0.30x = 2400$
 $0.60x = 2400$
 $\frac{0.60x}{0.60} = \frac{2400}{0.60}$
 $x = 4000$ $(4000, 3600)$

$y_1 = 0.90x$
 $y_1 = 0.90(4000)$
 $y_1 = 3600$

At 4000 km both vehicles will cost \$3600. Before 4000 km the Gas vehicle is cheapest. After 4000 km the electric vehicle is cheapest.

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q. 5

$y = \text{cost}$
 $x = \text{pages}$

$y_1 = 6x + 225$
 $y_2 = 5.50x + 375$

$y_1 = y_2$
 $6x + 225 = 5.50x + 375$
 $6x - 5.50x + 225 = 375$
 $0.50x + 225 = 375$
 $0.50x = 375 - 225$
 $0.50x = 150$
 $\frac{0.50x}{0.50} = \frac{150}{0.50}$
 $x = 300$

$y_1 = 6x + 225$
 $y_1 = 6(300) + 225$
 $y_1 = 1800 + 225$
 $y_1 = 2025$
 $(300, 2025)$

At 300 pages both printers cost \$2025. Before 300 pages Printer A is the cheapest. After 300 pages printer B is the cheapest.

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#6

First Choice

$y = 0.40x + 2.50$

G.T.A. Taxi

$y = 0.25x + 3.25$

$x = \text{# of kilometres}$
 $y = \text{Cost in \$}$

$y_1 = y_2$
 $0.40x + 2.50 = 0.25x + 3.25$
 $0.40x - 0.25x + 2.50 = 3.25$
 $0.15x + 2.50 = 3.25$
 $0.15x = 3.25 - 2.50$
 $0.15x = 0.75$
 $\frac{0.15x}{0.15} = \frac{0.75}{0.15}$
 $x = 5$

Sub $x = 5$

$y = 0.25x + 3.25$
 $y = 0.25(5) + 3.25$
 $y = 1.25 + 3.25$
 $y = 4.50$ $(5, 4.50)$

At 5 km both taxis will charge \$4.50. Before 5 km First Choice is cheapest. After 5 km, G.T.A. Taxi is cheapest.

Apr 30-1:52 PM

Find the point of intersection

$y = 3x - 6$ $5x + 2y = 12$
 $3y = -5x + 12$
 $y = -\frac{5}{3}x + 4$

$y_1 = y_2$
 $3(3x - 6) = (-\frac{5}{3}x + 4) \cdot 3$
 $9x - 18 = -5x + 12$
 $9x - 18 = -5x + 12$
 $9x + 5x - 18 = 12$
 $14x - 18 = 12$
 $14x = 12 + 18$
 $14x = 30$
 $\frac{14x}{14} = \frac{30}{14}$
 $x = \frac{15}{7}$

$y = 3x - 6$
 $y = 3(\frac{15}{7}) - 6$
 $y = \frac{45}{7} - 6$
 $y = \frac{45}{7} - \frac{42}{7}$
 $y = \frac{3}{7}$

Point of Int: $(\frac{15}{7}, \frac{3}{7})$

Apr 30-2:02 PM